**UNIVERSITY OF NOTRE DAME**
**DEPARTMENT OF PHYSICS**

# SPECIAL NUCLEAR SEMINAR

Tuesday, June 6

## *Probing Fundamental Physics: The Fruitful IGISOL+JYFLTRAP Combination*

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The ion guide isotope separator on-line (IGISOL) method allows production of radioactive ion beams without chemical restrictions and thus even refractory elements are available as ion beams. At the IGISOL facility of the University of Jyväskylä, Finland, proton induced fusion reactions are used to access neutron-rich nuclei while neutron deficient and nuclei close to stability are available through light-ion induced fusion evaporation reactions.

The Penning trap setup JYFLTRAP uses these beams for atomic mass measurements and to provide clean beams for decay spectroscopy studies. Currently we utilize time-of-flight ion cyclotron resonance (TOF-ICR) technique and we are commissioning a novel phase imaging ICR technique. Clean beams can be prepared with mass resolving power of more than one million. Another important development at JYFLTRAP is the construction of a multi reflection time-of-flight (MR-TOF) separator/spectrometer, which is based on the University of Greifswald design.

In this contribution, I will show how fruitful IGISOL+JYFLTRAP combination is and give an overview of our recent mass measurement results like the beta-decay and the double beta decay Q-value of 96Zr and beta-decay Q-value of 71Ge relevant for neutrino physics. I will also introduce a new Q-value measurement campaign to search for nuclei that have low beta-decay or electron capture Q-values.

**4 pm – 5 pm**

**Nuclear Science Laboratory**

**124 Nieuwland Science Hall**

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All interested persons are cordially invited to attend

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Refreshments will be served prior to the seminar in room 124